



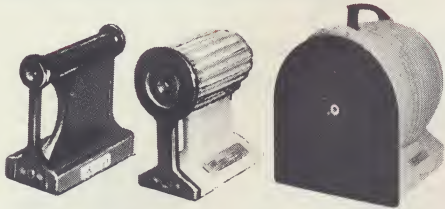
# Condensed Specifications INFRARED INDUSTRIES, INC.

Telephone (805) 684-4181/ Santa Barbara, California

## RELATED DIVISIONAL ACTIVITIES

### Blackbodies

and temperature controllers



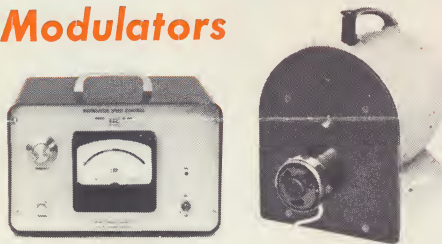
IRI blackbody sources are accurately adjustable radiant energy standards for the calibration of infrared radiation detectors, other infrared sources and measuring instruments. IRI all-transistorized temperature controllers maintain source temperatures to within  $\pm 1^\circ$  at any selected point in range. Source temperatures extend to  $1400^\circ\text{C}$ . Some features of IRI blackbodies are: Fast warm-up; selectable energy levels by interchangeable apertures; choice of physical configuration; provision for chopper; closed-loop electrical temperature control; air or water cooled; PLUS exclusive internal certified thermocouple.

Model	Temp.	Cavity	Field	W.U.*	HxWxD"
403	325-1000°K	0.5"	14°	30	10½x8x8½
404	50-1000°C	0.5"	14°	45	11¼x10x9
405	325-1000°K	1.0"	30°	60	10½x8x9½
406	50-1000°C	1.0"	30°	60	11¼x10x9
407A	200-600°C	0.080"	10°	5	3½x1¾x3¼
408	200-600°C	0.250"	90°	5	5½x3x4¾
417	50-1000°C	3.0"	18°	90	22x18x26
420	200-1200°C	0.5"	14°	45	11¼x10x9
427	200-600°C	.080"	14°	3	¾ dia. x 3½ lg.
432	400-1400°C	0.5"	12°	150	11¼x10x9
435	150-1000°F	—	—	30	6¼x11½x8½
436†	400-1500°C	0.5"	3°	180	10x12x13

\*W.U. Warm-up time in minutes

†Includes NON-AUTOMATIC, manual control

### Modulators



The IRI Series 801 modulators chop, or modulate, radiant energy at a desired frequency with a stability of  $\pm 1\%$ .

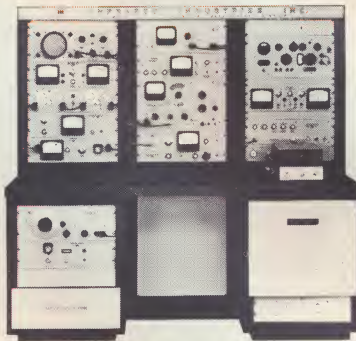
Model	Freq. Cps.	Max. Aperture
801A	2-200	0.75"
801B	10-1000	0.75"
801C	50-5000	0.2"
801D	100-10,000	0.1"
801E	300-30,000	.03"

Stability  $\pm 1\%$  Meter Accuracy 1% F.S.

### Voltage Calibrator

The IRI Model 225 Voltage Calibrator is a precision source of true RMS voltages from 0.5 microvolt to 1.0 volt when used with an oscillator or signal generator.

### Infrared Test Labs

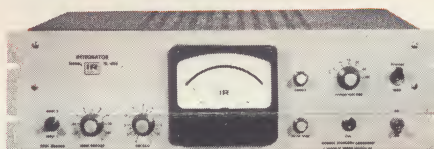


For precision measurement of infrared and other transducers there are many models of consoles, ranging from a basic system at minimum cost up through a comprehensive system, which provide a wide variety of features and versatile performance. IRI consoles measure and record signal, noise, noise-to-signal ratio, resistance and optimum bias at a controlled temperature of an array or single mounted detectors. They perform these tests more rapidly than has been heretofore possible. IRI test consoles permit the most comprehensive, compact, trouble-free testing sequences.

MODEL	DESCRIPTION
300	Basic System
300A	Standard System
301	Custom System
302	Comprehensive System

### Integrator

Model 602



The IRI Model 602 provides a single-valued non-ambiguous noise reading with repeatability of 1%.

### Collimators

Convenient laboratory sources of parallel radiation at any wavelength are found in IRI off-axis collimators. Production models incorporate useful design features such as clear exit apertures, collimation accuracy at all wavelengths (infrared, visible, ultraviolet) of 0.2 milliradians, mounting base for energy sources.

Model	Description	Coll. Accur.	Wgt.
230	Off-Axis, 5"	.2 milliradians	56 lbs.
232	Off-Axis, 8"	.2 milliradians	175 lbs.
234	On-Axis Newtonian, 10"	.02 milliradians	175 lbs.
235	Off-Axis, 8"	.2 milliradians	35 lbs.

IR instrumentation systems—in addition to detectors—usually require optical components and electronic signal processing. Fast and effective solutions to customer problems in all of these areas can be expected from IRI because these facilities are under one roof in a modern plant especially built for these purposes.

### OPTICS

The Optical Systems Division—one of the largest precision manufacturing facilities in the U.S.—has extensive capabilities in reticles, mirrors, optical components (flats, spherics and aspherics) generated from conventional and exotic substrates, precision mountings, and systems. The Optical Systems Division applies 40 years of experience to the solution of scientific optical problems.

### PHOTOCONDUCTORS

The Photoconductor Division (Infrared Detectors) located in Walham, Mass., is the largest research and production facility in the country for IR detectors and interference filters. Lead sulphide, indium antimonide and lead selenide detectors are produced in a wide variety of mounts, cell sizes and configurations. Interference filters in various bandwidths are available to cover ranges beyond 15 microns.

### SYSTEMS R&D

In-house research on all aspects of IR technologies is, of course, a continuing effort by all divisions. Close operational liaison between all research groups permits highly productive output for industry and government on applied research projects involving electro-optical techniques. Your inquiry is invited.



# Condensed Specifications




## INFRARED INDUSTRIES, INC.

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## Low Noise Instrumentation

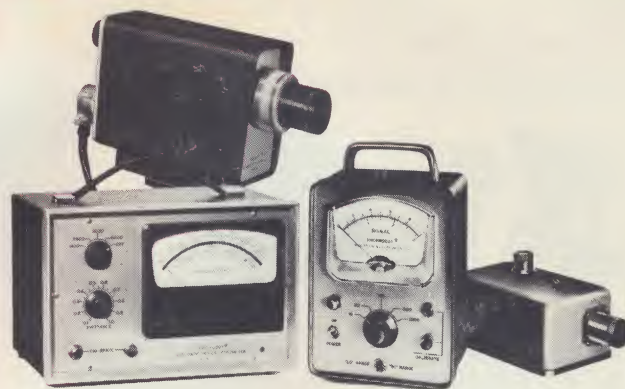
IRI provides a select line of amplifiers, pre-amps and microvoltmeters with unique sensing capabilities for low-noise, microvolt signal processing. For example, IRI Tunable Microvoltmeter measures signals .003 microvolts to 1 volt over a wide range of frequencies; a solid-state miniature (less than 1 cubic inch) low-noise pre-amplifier has extremely low-noise figure over a wide temperature range (1.1 to 1.8 db or less from minus 40°C to plus 100°).



Broadband Amplifiers	Input Z	Freq. Resp.	Max. Gain	ENI V/cps <sup>1/2</sup>
603	40 megs	2 cps-200 kc	4000	1.2 x 10 <sup>-8</sup>
604 B	35 megs	1 cps-300 kc	0.95	1.3 x 10 <sup>-8</sup>
605	40 k ohms	2 cps-200kc	4000	1 x 10 <sup>-8</sup>
Tuned Amplifiers				
600		depends on pre-amp		
601		depends on pre-amp		
New specs: 4 % center frequency			Tuning Range	Min. Band Width
			10 cps-10 kc	46% center frequency
			1 cps-1 kc	46% center frequency
Pre-Amplifiers	Input Z	Freq. Resp.	Max. Gain	ENI V/cps <sup>1/2</sup>
6001 } 6011 }	1 meg	depends on tuned Amp.		2 x 10 <sup>-9</sup>
6002 A } 6012 A }	40 megs	depends on tuned Amp.		1.2 x 10 <sup>-8</sup>
6003 } 6013 }	15 ohms	depends on tuned Amp.		3.2 x 10 <sup>-10</sup>
6004 } 6014 }	10-10 k ohms	depends on tuned Amp.		2.2 x 10 <sup>-10</sup>
				Noise Figure
606	10 megohms	1 cps-2 kc	10	≤ 1 db
615	5-25 ohms	10 cps-50 kc	50,000	≤ 2 db
616	25-100 ohms	10 cps-50 kc	50,000	≤ 2 db
617	100 k ohms	5 cps-1 mc	1000	< 2 db

**Bias Supplies** The IRI Bias Supplies use laboratory calibrated mirrored scale meters. Separate meters monitor both voltage and current and provide a continuous check of transducer operating resistance. Spring cushions at each end of the meter movement permit up to 500% accidental overload. Voltage ranges are continuously adjustable from 0 to 110% of full scale.

Model	Output Ranges (volts)	Output Current (microamps)	Maximum Source Resistance
501A	15, 50, 150, 500	10, 30, 100, 300, 1,000	65k shunted by $1\mu\text{fd}$
502	10, 30, 100, 300, 1,000	10, 30, 100, 300, 1,000, 3,000, 10,000	128k shunted by $1\mu\text{fd}$
503	$\pm 15, \pm 50, \pm 150, \pm 500$ 3 terminal output (+, common, —)	10, 30, 100, 300, 1,000	70k shunted by $1\mu\text{fd}$



## Thermodot<sup>®</sup>

non-contact temperature measurement

More than thirty-five Thermodot models perform a wide variety of non-contact temperature measurement functions ranging from fast-response quality control scanners for measuring the temperature of printed circuits under load, to recording the temperatures of flame and of objects through flame. Moving objects, glass, molten metals — even in corrosive or radio-active environments — can be accurately sensed without contact, with precision repeatability, and a high degree of resolution — spot size as tiny as .030".

Model No.	Temp. Range	Model No.	Temp. Range
TD-1	100 - 8000°F	TD-6AH	250 - 5000°F
A160	100 - 16000°F	AHT15	430 - 1500°F
		AHT70	970 - 7000°F
TD-5	100 - 8000°F	AHTC8	220 - 800°C
TD-6A	210 - 3300°F	AHTC39	520 - 3900°C
AT8	250 - 800°F		
AT15	430 - 1500°F	TD-6BH	250 - 5000°F
AT70	970 - 7000°F	BHT15	430 - 1500°F
ATC5	140 - 500°C	BTT70	970 - 7000°F
ATC8	220 - 800°C	BHTC8	220 - 800°C
ATC15	320 - 1500°C	BHTC39	520 - 3900°C
ATC30	670 - 3000°C	AG	560 - 4000°F
ATC39	520 - 3900°C	BG	560 - 4000°F
TD-6B	210 - 3300°F		
BT8	250 - 800°F	TD-8	175 - 2000°F
BT15	430 - 1500°F	8G	320 - 3000°F
BT70	970 - 7000°F		
BTC5	140 - 500°C	TD-9F	1400 - 8300°F
BTC8	220 - 800°C	9FH	1840 - 8300°F
BTC15	320 - 1500°C		
BTC30	670 - 3000°C	TD-9C	760 - 4590°C
BTC39	520 - 3900°C	9CH	1000 - 4590°C